

WHAT IS CLAIMED IS:

- 1                   1.       A method of detecting cancer cells in a biological sample from a  
2 mammal, the method comprising the steps of:
  - 3                   (i) providing the biological sample from the mammal; and
  - 4                   (ii) detecting an overexpression of a Pellino 1 polypeptide comprising at least  
5 70% amino acid identity to SEQ ID NO:2 or a Pellino 2 polypeptide comprising at least 70%  
6 amino acid identity to SEQ ID NO:4 in the biological sample, thereby detecting the presence  
7 of cancer cells in the biological sample.
- 1                   2.       The method of claim 1, wherein the Pellino 1 polypeptide has an  
2 amino acid sequence of SEQ ID NO:2 or the Pellino 2 polypeptide has an amino acid  
3 sequence of SEQ ID NO:4.
- 1                   3.       The method of claim 1, wherein the Pellino 1 or Pellino 2 polypeptide  
2 is detected using an antibody that selectively binds to the polypeptide.
- 1                   4.       The method of claim 1, wherein the detecting step comprises detecting  
2 an mRNA that encodes the Pellino 1 or Pellino 2 polypeptide.
- 1                   5.       The method of claim 1, wherein the cancer cells are from an epithelial  
2 cancer.
- 1                   6.       The method of claim 5, wherein the epithelial cancer is a lung, colon,  
2 or ovarian cancer.
- 1                   7.       The method of claim 1, wherein the mammal is a human.
- 1                   8.       A method of detecting cancer cells in a biological sample from a  
2 mammal, the method comprising the steps of:
  - 3                   (i) providing the biological sample from the mammal; and
  - 4                   (ii) detecting an increase in copy number of a gene encoding a Pellino 1  
5 polypeptide comprising at least 70% amino acid identity to SEQ ID NO:2 or a Pellino 2  
6 polypeptide comprising at least 70% amino acid identity to SEQ ID NO:4 in the biological  
7 sample, thereby detecting the presence of cancer cells in the biological sample.
- 1                   9.       The method of claim 8, wherein the detecting step further comprises:

2 (a) contacting the gene with a probe that selectively hybridizes to the gene  
3 under conditions in which the probe selectively hybridizes to the gene to form a stable  
4 hybridization complex; and

5 (b) detecting the hybridization complex.

1 10. The method of claim 8, wherein the Pellino 1 polypeptide has an  
2 amino acid sequence of SEQ ID NO:2 or the Pellino 2 polypeptide has an amino acid  
3 sequence of SEQ ID NO:4.

1 11. The method of claim 8, wherein the cancer cells are from an epithelial  
2 cancer.

1 12. The method of claim 11, wherein the epithelial cancer is a lung, colon,  
2 or ovarian cancer.

1 13. The method of claim 8, wherein the mammal is a human.

1 14. A method of monitoring the efficacy of a therapeutic treatment of  
2 cancer, the method comprising the steps of:

3 (i) providing a biological sample from a mammal undergoing the therapeutic  
4 treatment; and

5 (ii) detecting a level of a Pellino 1 polypeptide comprising at least 70% amino  
6 acid identity to SEQ ID NO:2 or a Pellino 2 polypeptide comprising at least 70% amino acid  
7 identity to SEQ ID NO:4, or detecting copy number of a gene encoding the Pellino 1 or  
8 Pellino 2 polypeptide in the biological sample compared to a level or copy number in a  
9 biological sample from the mammal prior to, or earlier in, the therapeutic treatment; thereby  
10 monitoring the efficacy of the therapy.

1 15. The method of claim 14, wherein the Pellino 1 polypeptide has an  
2 amino acid sequence of SEQ ID NO:2 or the Pellino 2 polypeptide has an amino acid  
3 sequence of SEQ ID NO:4.

1 16. The method of claim 14, wherein the cancer is an epithelial cancer.

1 17. The method of claim 15, wherein the epithelial cancer is a lung, colon,  
2 or ovarian cancer.

- 1                   18.     The method of claim 14, wherein the mammal is a human.
- 1                   19.     A method of identifying a compound that inhibits the activity of a  
2 Pellino 2 polypeptide, the method comprising the steps of:  
3                   (i) contacting the compound with a Pellino 2 polypeptide that comprises at  
4 least 90% identity to an amino acid sequence of SEQ ID NO:4; and  
5                   (ii) detecting a decrease in the activity of the Pellino 2.
- 1                   20.     The method of claim 19, wherein the Pellino 1 polypeptide has an  
2 amino acid sequence of SEQ ID NO:2 or the Pellino 2 polypeptide has an amino acid  
3 sequence of SEQ ID NO:4.
- 1                   21.     The method of claim 19, wherein the Pellino 2 polypeptide is  
2 amplified in the cell compared to normal.
- 1                   22.     A method of inhibiting proliferation of a cancer cell that  
2 overexpresses a Pellino 1 polypeptide comprising at least 70% amino acid identity to SEQ  
3 ID NO:2 or a Pellino 2 polypeptide comprising at least 70% amino acid identity to SEQ ID  
4 NO:4, the method comprising the step of contacting the cancer cell with a therapeutically  
5 effective amount of an inhibitor of the Pellino 1 or 2 polypeptide.
- 1                   23.     The method of claim 22, wherein the cancer cell is from an epithelial  
2 cancer.
- 1                   24.     The method of claim 23, wherein the epithelial cancer is a lung, colon,  
2 or ovarian cancer cell.
- 1                   25.     The method of claim 22, wherein the Pellino 1 polypeptide has an  
2 amino acid sequence of SEQ ID NO:2 or the Pellino 2 polypeptide has an amino acid  
3 sequence of SEQ ID NO:4.
- 1                   26.     The method of claim 22, wherein the inhibitor is identified using the  
2 method of claim 19.
- 1                   27.     The method of claim 22, wherein the inhibitor is an antibody.

1                   28.    The method of claim 22, wherein the inhibitor is an antisense  
2 polynucleotide.

1                   29.    A isolated nucleic acid encoding a Pellino 2 polypeptide, wherein the  
2 Pellino 2 polypeptide comprises at least 95% amino acid sequence identity to SEQ ID NO:4.

1                   30.    The nucleic acid of claim 29, wherein the nucleic acid encodes a  
2 Pellino 2 polypeptide comprising an amino acid sequence of SEQ ID NO:4.

1                   31.    The nucleic acid of claim 29, wherein the nucleic acid comprises a  
2 nucleotide sequence of SEQ ID NO:3.

1                   32.    An expression vector comprising the nucleic acid of claim 29.

1                   33.    A host cell comprising the expression vector of claim 32.

1                   34.    An isolated Pellino 2 polypeptide comprising at least 95% amino  
2 acid identity to SEQ ID NO:4.

1                   35.    The polypeptide of claim 34, wherein the polypeptide comprises an  
2 amino acid sequence of SEQ ID NO:4.

1                   36.    The polypeptide of claim 34, wherein the polypeptide specifically  
2 binds to antibodies generated against a polypeptide comprising an amino acid sequence of  
3 SEQ ID NO:4.

1                   37.    An antibody that specifically binds to the polypeptide of claim 34.